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# Stances and Doctrines in Scientific Metaphysics

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# Outline

- 1 The Notion of Stance in van Fraassen's Critique of Metaphysics
- 2 Scientific Metaphysics as a Response to van Fraassen's Critique
- 3 Evaluating Stances: The Case of Scientism

# The Problem with Naïve (Doctrinal) Empiricism

Traditional view of philosophical positions:

Principle Zero (van Fraassen 2002, 41)

For each philosophical position X there exists a **statement** X<sub>+</sub> such that to have (or take) position X is to **believe** (or decide to believe) that X<sub>+</sub>.

In the case of **empiricism**, adopting Principle Zero leads to a *reductio ad absurdum* of naïve empiricism (ibid., 42–46):

- X<sub>+</sub> would be something like “Experience is the one and only source of information”.
- At the same time, empiricism holds that no factual claim can be ruled out *a priori*.
- Thus, if X<sub>+</sub> is understood as a factual claim, metaphysical claims contradicting it cannot be ruled out!

# From Doctrines to Stances

Van Fraassen (2002, 47–48) therefore **rejects Principle Zero**:

A philosophical position can consist in **something other than a belief** in what the world is like. . . . [It] can consist in a **stance** (attitude, commitment, approach, a cluster of such—possibly including some propositional attitudes such as beliefs as well).

## Key characteristics of the empirical stance

- 1 a rejection of demands for explanation at certain crucial points,
- 2 a strong dissatisfaction with explanations (even if called for) that proceed by postulation. (ibid., 37)
- 3 As in science, so in philosophy: disagreement with any admissible factual hypothesis is admissible. (43)

# An Alternative Stance: Materialism

- For **naïve materialism**, X+ might be “Matter is all there is”. (ibid., 49)
- Although naïve materialism may not be subject to a similar *reductio* as naïve empiricism, it is either **empty** or likely to be **falsified** by future science.
- Therefore, materialism (just like empiricism) should be understood as a stance, not as a doctrine.

## The materialist stance

In contrast to empiricism (which primarily admires the **methods** of the empirical sciences), materialism is characterized by “a certain deference to the **content** of science. This deference takes two forms: the belief that the scientific description of the world is **true**, in its entirety or near enough, and at least a strong inclination toward **completeness claims** for the content of certain sciences.” (62–63)

# Stances and Metaphysics

Even before one endorses the empirical (or any other anti-metaphysical) stance, there is an anti-metaphysical element in the very move from philosophical doctrines to stances.

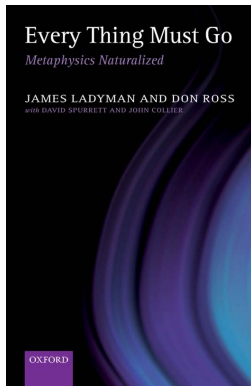
To agree with van Fraassen that philosophical positions ought to be stances rather than doctrines is to suppose that there is value in some philosophy, somehow conceived, but not in strong metaphysics. (Ladyman and Ross 2007, 60)

## Strong vs. weak metaphysics

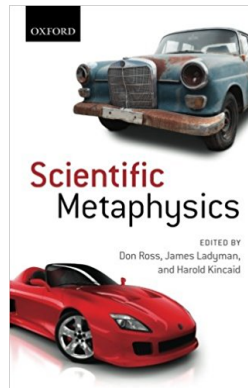
While **strong metaphysics** is concerned with “non-trivial doctrinal beliefs about the structure of the world that go beyond what the sciences tell us or imply” (ibid.), the propositions of **weak metaphysics** “should be understood not as doctrines but as proposed provisional commitments for living out the stance” (65).

# Scientific (or Naturalized) Metaphysics

In the context of Ladyman's and Ross's (henceforth "L&R") **scientific stance** (see below), weak metaphysics becomes "the articulation of a unified world-view derived from the details of scientific research" (ibid.).



(2007)



(2013)

# Is Weak Metaphysics Really Less Doctrinal?

We can say ‘go in peace’ to Heideggerians, noting that it was entirely appropriate that Heidegger did not attempt to base any elements of his philosophy on science, and focused on hammers . . . rather than atoms . . . when he reflected on objects. **We, however, are interested in objective truth** rather than philosophical anthropology. Our quarrel will be with philosophers who claim to share this interest, but then fail properly to pay attention to our basic source of information about objective reality. (L&R 2007, 5)

This contradicts the non-doctrinal rhetoric of weak metaphysics:

- If the scientific stance is concerned with **objective truth** in a sense in which other stances are not, how do its propositions differ from the doctrines of strong metaphysics?
- Nor are these propositions mere “provisional commitments”: L&R endorse structural realism as “a defensible basis for . . . viewing the history of science as a history of **progressive accumulation of knowledge**” (65).



# Metaphysics and Conversion

L&R (2007, 64) on how to engage with people who resist adopting the scientific stance:

Their resistance to science, which must be quite thoroughgoing if it is not to be unprincipled, will confront them with serious policy problems in the management of social affairs, and we will want to press them as hard as possible on these. **But we would not try to convert them with metaphysics**, for van Fraassen is right that that would require strong metaphysics, and strong metaphysics can't get off the ground.

However, even weak metaphysics can be put to the service of converting people:

The best motivation for trying to synthesize our scientific knowledge into a unified picture—that is, for building naturalistic metaphysics—is the crucial service this activity potentially performs in **extending the Enlightenment project**. If science is not seen to provide the basis for a general worldview, then people will continue to collectively **confabulate alternative general pictures**. This in turn matters because the confabulated pictures inspire groundless and usually wasteful and destructive politics and policy. (L&R 2013, 113)

## Interim Conclusion

- On closer inspection, weak metaphysics turns out to produce statements that are purported to be objectively true, just as the doctrines of strong metaphysics.
- This suggests that **the distinction between weak and strong metaphysics is largely irrelevant** to the task of defending metaphysics against van Fraassen's critique.
- If scientific metaphysics is to have any advantage over its predecessors, it must consist in its being “derived from the details of scientific research”.
- The contrast is then no longer between weak and strong metaphysics, but between **different kinds of weak metaphysics**, based on different stances.

This raises the question as to how stances can be evaluated against each other.

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Since rationality is the only stance-neutral criterion for the acceptability of a stance, there are **no further grounds on which to prosecute a non-question-begging case for the epistemic superiority** of one over another; they are, *qua* rationality, the only relevant measure, “equally strong”.  
(Chakravartty 2017, 243)

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# The Scientific (= empirical + materialist) Stance

Conjecture: Chakravartty's irenic judgment on stances stems from the simplicity of his examples. As soon as stances involve richer combinations of commitments, **a more substantive evaluation in terms of internal coherence** becomes possible.

## Example: L&R's scientific stance

So we really are, in detail, both **perfect empiricists** and **perfect materialists** according to van Fraassen's criteria. Note that this cannot be diagnosed as implying doctrinal self-contradiction, for that is a charge that is inappropriate to stances. (L&R 2007, 63)

- Van Fraassen (2011, 167–8) mentions some ways in which L&R's stance can nevertheless fail to be internally coherent.
- Even doctrinal self-contradictions can be important by indicating an internal incoherence of the corresponding stance, as the following case study shows.

# The Scientific Stance in Quantum Mechanics (QM)

## The measurement problem

QM provides some highly reliable rules for the (probabilistic) prediction of measurement outcomes, but it is notoriously unclear

- what counts as a 'measurement' and
- how these rules of prediction relate to the way physical systems behave when no measurement is performed.

This generates **a dilemma for the scientific stance**:

- Interpretations and modifications of QM proposed in response to the measurement problem often make metaphysical assumptions (additional variables, many worlds, collapse dynamics) which the **empiricist** should reject.
- Proposals without such assumptions tend towards a kind of antirealism that is in tension with the **materialist** stance.

# L&R's Unsuccessful Attempt to Escape the Dilemma

Referring to Niels Bohr, L&R (2007; 2013) claim that one can **avoid the unduly metaphysical solutions** to the measurement problem **without falling into antirealism**. The idea is to simply refuse to give any account of 'measurement'.

## The dilemma resurfaces

Does an unobserved, measurement-like process yield a unique result?

- If so, this means that quantum superpositions sometimes disappear spontaneously (but real spontaneous collapses are hardly acceptable for the **empiricist**).
- If not, this either means that the presence of an observer changes physical processes (in contradiction to **materialism**) or that the universe is full of unobservable quantum superpositions (abhorrent to the **empiricist**).

# Conclusion

- Of course, alternative approaches to the measurement problem are imaginable within the scientific stance, but the impossibility of simultaneously satisfying **empiricist** and **materialist** demands seems pervasive.
- So why not rest content with one of the two components (especially if rationality is “the only relevant measure”)?
  - For anyone sensitive to the critique of metaphysics, giving up **empiricism** in favour of a speculative **materialism** is not viable.
  - But empiricism alone does not seem to provide a sufficiently unified view of the world and ourselves in it. Is this the reason for the prominent role of religion in *The Empirical Stance*?
  - As for secularists like L&R, the desire for a unified worldview pushes them towards adding the **materialist** to the **empirical** stance. The threat of incoherence seems to be the price to be paid for this move.

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